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UNITED STATES PATENT APPLICATION

of

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for

FREIGHT CONTAINER

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RELATED APPLICATIONS

This application claims priority to United Kingdom Patent Application Serial No. 0305623.1, filed March 12, 2003.

BACKGROUND OF THE INVENTION

This invention relates to a freight container. Such containers are conventionally of generally cuboidal shape and have standard external dimensions so that they can fit in standard spaces on road, rail or sea transport vessels.

Such freight containers are delivered full of goods to the recipient of those goods. In a number of situations, those goods are not all unloaded at once, and the container remains on site and is used as a temporary static storage location.

Some such containers are refrigerated and contain goods which have to be held below a certain temperature. In this case, the container itself includes a refrigeration plant which will require connection to an external power supply.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a rectangular freight container having length width and height dimensions of a standard size, and two doors at one end, the doors being of the same height but with different width dimensions and extending to the floor of the container.

Making the doors of different sizes means that one door can be large enough to allow access into the container

with trolleys or vehicles larger than would be possible with a single door.

The larger door preferably has a lock which can be
5 unlocked by operating a single lock handle. This makes it easy for the door to be opened and closed which is a particular requirement where a container is being used as a temporary storage facility from which goods will be unloaded from time to time and where the access door
10 has to be repeatedly opened and closed. This is especially the case with refrigerated containers which may be used for example by supermarkets to hold stock until it is needed to replenish store shelves.

15 In a suitable embodiment, the lock can be a vertical locking bar mounted for rotation about its own axis adjacent the opening edge of the door, with keepers at the top and bottom of the door frame to receive locking tongues on the bar, and a lock handle between the ends
20 of the bar which can be turned to rotate the bar to free the tongues from the keepers.

Preferably the smaller door has locks which can only be operated from inside the container. The smaller door
25 will generally only need to be opened when all the contents of the container are being loaded or unloaded at once, and can be left closed and locked when the larger door is opened and close for routine visits to and from the container. The locks for the smaller door

can be shoot bolts at the top and bottom corners of the inside face of the door.

The larger door preferably has an internal door release mechanism, so that if the door is shut with somebody inside the container, they will be able to open the door to release themselves. The internal door release mechanism can act from inside the container on an external door release mechanism which will normally be the same lock mechanism which opens the door from outside.

A security bar can be locked between the two doors to prevent operation of the single lock handle. There is a requirement for a secure lock (and a customs seal) to be available to prevent unauthorised tampering with the container contents. The security bar can be locked across the single lock handle, so that the lock handle cannot be operated until the security bar is removed.

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When the container is used for storage purposes, and the main door has to be regularly opened and closed, it is important that the door fits properly into its frame, especially where the container is a refrigerated container. To ensure that the frame is not distorted if the container is resting on uneven ground, the door frame is preferably reinforce to prevent any skewing.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:

- Figure 1 is a partial perspective view of a freight container in accordance with the prior art;
- Figure 2 is a rear view of a freight container in accordance with the invention;
- Figure 3 is a section through the container of Figure 2 on the lines A-A;
- Figure 4 is a view, on a larger scale, of part of the section from Figure 3, showing a door open;
- Figure 5 is a detail of the door locking mechanism, shown in section;
- Figure 6 shows another view of another part of the locking mechanism; and
- Figure 7 shows a detail of the door seals.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows a conventional storage container which, as is known, has standard rectangular dimensions, closed sides 16, a closed roof 14 and a floor, and two ends. At one end there are two doors 18, 20. The doors are hinged to the container frame at 22 and each door has two locking bolts 24 which can be

released using operating bars 26 to allow the doors to be opened and closed.

Figure 2 shows a corresponding view of one end of a
5 container in accordance with the invention. This container has a primary door 124 and a secondary door 125 of smaller dimensions. Both doors have hinges 122 by which they are hinged to a frame 101. The secondary door 125 is closed by internal shoot bolts 128 which
10 are operated from inside the container, such that when both doors are closed there is no accessible mechanism for opening the secondary door 125.

The primary door 124 has a single latch mechanism at
15 130. This latch mechanism operates a vertical bar 132. The ends of the bar are held in keepers 134 on the frame 101 when the door is closed and latched. When the latch 130 is released (by operating a handle 142), the bar 132 can be rotated about its own axis to
20 release its end portions from the keepers 134, so that the door can be opened.

This latch mechanism may require a key to unlock it before the handle can be moved. A keyhole 162 can be
25 seen in Figure 6. The latch can however be closed without being locked, so that access by authorised personnel is not inhibited. It may also be possible to apply a separate padlock to the latch mechanism.

Figure 3, which is a section on the lines A-A from Figure 2 also shows flexible seals 136 between the outer edges of the doors 124, 125 and the frame 110, and further seals 138 where the doors 124, 125 meet one another. It can also be seen from Figures 3 and 4 that the latch 130 has a part which extends through the thickness of the door to an unlatching member 140 on the inside surface of the primary door 124. This mechanism is shown in more detail in Figure 5, where the main door handle accessible from outside the container is shown at 142, shielded within a housing 144.

The internal release knob 140 is mounted at the top of a stem 146 which projects through a recess in the door and has an opposite end which abuts against the main door unlatching handle 142. The shaft 146 projects through a saucer recess 148 on the inside of the door, and when the knob 140 is pushed fully home to the floor of the recess 148, the pressure of the stem acting on the handle 142 will rotate the handle far enough to release the upper and lower ends of the bar 132 from their keepers 134, so that the door can be opened from inside.

Figure 5 shows a security bar 150 which is hinged to the primary door 124 at 152, extends across the housing 144, and is then retained in a socket 154 on the secondary door 125. A padlock and/or customs seal can

be applied to the socket 154 to prevent the security bar 150 from being removed. Whilst in place, the security bar 150 prevents the main door handle 142 from being moved to an unlocking position.

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The primary door 124 also has a keeper 156 (see Figure 2) into which the security bar 150 can be located once it is safe for the container door to be held closed just by the lock 130.

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Figure 7 shows a detail of the way in which the doors seal against one another. At the outer edges of the doors, extrusions 168a and 168b are mounted, and the extrusion 168b on the primary door carries an outer gasket 166 made of EPDM. The form of the extrusions 168 are such that the edge of the primary door 124 is staggered relative to the secondary door 125 which allows the primary door to be easily opened and closed. Secondary lip seals 164a and 164b are mounted in identical extrusions 170a and 170b on the container interior side of the seal 166.

The use of a single latch 130 makes it much easier for the primary door 124 to be opened and closed than is the case with a conventional container door locking arrangement. This allows the container to be used at its destination as a storage location, where personnel need and can obtain frequent access to the contents of the container. The door can easily be opened and

closed without complication and without requiring undue strength. To ensure that the door can always be opened, and to ensure that the seals 136, 138 make effective sealing contact between the door and the frame, the frame is reinforced compared to standard freight containers. Additional strengthening will be built in on all four sides of the frame, so that the frame resists skewing which might otherwise arise should the container be set down on uneven ground, and which might hamper opening and closing of the doors.

Furthermore, because the primary door 124 is wide, trolleys or barrows can be brought into the container to unload its contents.

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The invention is especially useful on refrigerated containers, where it is important to ensure that the door is not left open.

What is claimed is: